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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,399	12/03/2003	David Forehand	MEM 2657001	5565
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CARR LLP 670 FOUNDERS SQUARE 900 JACKSON STREET DALLAS, TX 75202			EXAMINER MITCHELL, JAMES M	
			ART UNIT 2813	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/726,399	Applicant(s) FOREHAND, DAVID	
	Examiner JAMES M. MITCHELL	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 24, 26-33, 44, 46-53, 64, 66, 68-70 and 72-87 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 24, 26-33, 44, 46-53, 64, 66, 68-70, 72-87 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to applicant's request for continued examination filed March 30, 2009.

Claim Rejections - 35 USC § 112

2. Claim 81-83 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for additional material being formed adjacent to protective material.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the additional material being formed adjacent to protective material must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the

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brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 24, 26, 30, 32, 44, 46, 50, 52, 68, 69, 70, 73, 75, 77-80 are rejected under 35 U.S.C. 102(b) as being anticipated by Gueissaz (U.S. 2001/0004085).

7. Gueissaz (e.g. Fig. 20a-21) discloses:
(cl. 1, 24, 44, 68, 69, 70, 73, 79, 80) a method for packaging at least one microscopic device, having a moveable region (e.g. sensor cavity) comprising: applying a sacrificial material ("sacrificial material, 7; Par. 0106) to at least one microscopic device (6); applying a layer of structural material (9) adjacent the sacrificial material, the layer of structural material forming a housing adjacent at

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least a portion of the sacrificial material; creating one or more apertures (10) in the housing of structural material to expose at least a portion of the adjacent sacrificial material, the apertures having and thus determining size and shape such that a removing material is able to pass through at least one of the apertures but a protective material cannot pass through (23 not passing through holed; e.g. Fig. 21; Par .0107); removing the sacrificial layer (Par. 0106), wherein the housing of structural material with at least one aperture remains (Fig. 20B); depositing a protective material (23) adjacent the housing of structural material overlaying at least one aperture of the housing in amount sufficient to substantially close the aperture without entering the housing sufficiently to interfere with operation of the device; and curing the protective material (e.g. liquid deposited; Par. 0107) without being deposited on the device or any substrate underlying housing; and curing the protective material (e.g. becomes hardened to encapsulate device)

(cl. 26, 30, 46, 50, 75) the sacrificial material having a higher etch rate than structural material, removing comprising chemical etch (e.g. only sacrificial material removed; Par. 0072);

(cont. cl. 24) wherein the protective material flows into at least one aperture (23; Par. 0108; Fig. 21).sealing;

(cl. 11, 32, 52) structural layer between .2 and 10 microns (Par. 0093);

(cl. 77) further depositing a conductive material (e.g. "metal layer", 9/ alt. 17; Abstract);

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(cl. 77, 78) further depositing a conductive material comprises depositing a protective material (e.g. "solder", 23 is conductive);

(cont. cl. 80) sacrificial first viscosity and liquid protective having a second viscosity (e.g. holes small enough to let sacrificial past, but not protective material; Par. 0106-0107).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 32, 33, 52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Gueissaz (U.S. 2001/0004085).

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11. Gueissaz discloses the elements of paragraph 7 of this office action, but does not explicitly disclose the selected thickness of the sacrificial or structural layer thickness is between .2 and about 10 microns.

12. However, applicant has not disclosed that the claimed thickness is for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. Hence the limitation would have been obvious, since it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

13. Claims 2, 7, 10, 11, 12, 64, 74 and 84-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Gueissaz (U.S. 2001/0004085) in combination with Marrs (U.S. 5,485,037) and Plummer et al. (U.S. 4,480,975).

14. Gueissaz discloses the elements of paragraph 7 of this office action and further protective material flowing into at least portion of aperture with the component being exposed to air (e.g. holes in structure expose component to air prior to being filled with protective material), but does not explicitly disclose the material is cured/ allowed to harden or use of gas pressure that's at least 1 Pascal and a temperature less than 600 degree or depositing protective

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material by allowing the protective material to flow into at least a portion of an aperture

15. However, Marrs discloses curing an electrically nonconductive sealing material (e.g. plastic “transfer molding”; Col. 5, Lines 50-52) while Plummer (Col. 3, Lines 3-40) teaches that transfer molding uses a gas pressure ranges of at least 1 Pascal and a temperature less than 600 degree allowing a material to flow into at least a portion of an aperture/cavity.

16. It would have been obvious to one of ordinary skill in the art to incorporate curing an electrically nonconductive material on the housing of Gueissaz at the claimed ranges in order to package the device by transfer molding as taught by Marrs (Col. 5, Lines 49-51).

17. Furthermore with respect to the claimed range or humidity percentage, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed temperature and curing ranges, since it has been held that where the general working conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

18. With respect to the selected thickness of claims 11 and 12 like the sacrificial or structural layer thickness is between .2 and about 10 microns. See paragraph 7 of this office action.

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19. Claims 3-5, 8, 27, 47, 48 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Gueissaz (U.S. 2001/0004085) in combination with Carley (U.S. 7,008,812).

20. Gueissaz discloses the elements stated in paragraph 7 of this office action, but does not disclose its structural material composed of a photoresist or polyimide or wherein the structural layer is selected from a group of Silicon Dioxide (SiO₂) and Silicon Nitride (Si₃N₄).

21. Carley discloses structural material composed of a photoresist or polyimide (Col. 2, Lines 42-54) or selected from a group of Silicon Dioxide (SiO₂) and Silicon Nitride (Si₃N₄) (Col. 4, Lines 28-29),

22. Because structural material made from the claimed materials are known in the art as evidenced by Carley above, its selection would have been obvious to one of ordinary skill in the art, since it has been held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

23. Claims 28, 29, 31, 49, 51 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Gueissaz (U.S. 2001/0004085) in combination with in combination with Yang et al. (U.S. 2004/0046835).

24. Gueissaz does not appear to disclose the step of removing by sputter or plasma etching or ion beam milling.

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25. Yang shows that plasma, sputter etching or ion beam milling or chemical etching is equivalent processes that form equivalent structures known in the art known. Therefore, because these processes are art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute the use of for example a chemical etch instead of a plasma etch to remove material.

26. Moreover, use of the claimed etching or processes are one of a finite methods to solve the problem of removing material as evidenced by Yang. As such, it would have been obvious to one of ordinary skill in the art to pursue these etching/milling processes to remove material from selected areas. E.g. KSR Int'l v. Teleflex Inc., 127 S.Ct. 1727,1743, 550 U.S. __,17 (2007) (finding that when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense).

Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M. MITCHELL whose telephone number is (571)272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Landau can be reached on (571) 272-1731. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

April 6, 2009
/James M. Mitchell/
Examiner, Art Unit 2813